openreach

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Suppliers' Information Note

For The Openreach Network

OPENREACH CCTV ACCESS (uncompressed)
Service & Interface Description

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1. Introduction

This Suppliers Information Note (SIN) describes the Openreach CCTV Access uncompressed (analogue) service and provides technical information for terminal equipment manufacturers, suppliers and developers.

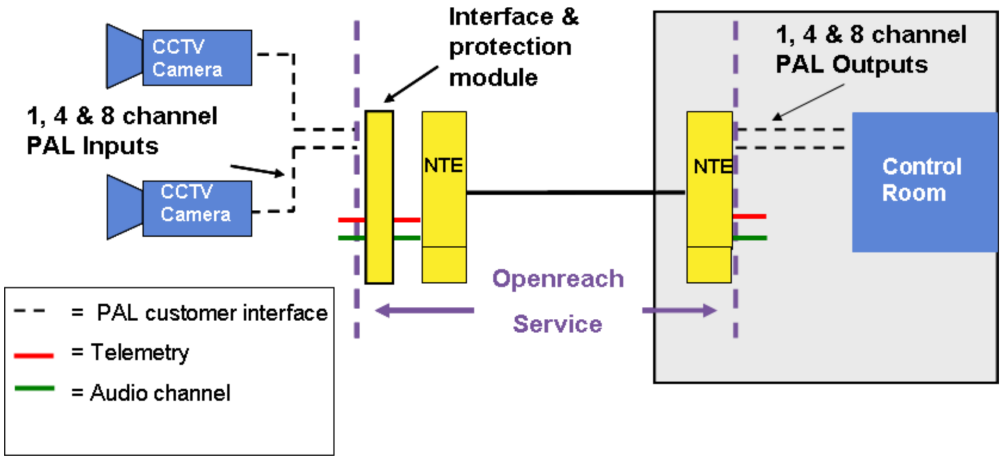
2. Service Outline

2.1 General

The Openreach CCTV Access uncompressed (analogue) service provides high quality unidirectional zero-delay video connectivity between a remote CCTV Camera location and the CCTV Control room where the service terminates.

The 'A-end' of the Openreach CCTV Access circuit will be at the CCTV control room and the 'B-end' of the circuit will be at the remote CCTV camera location for the majority of circuits, however there maybe instances where this could also be a CCTV control room. The Communications Provider will connect their CCTV equipment to the NTE at each end of the service.

The CCTV Access uncompressed service will transport PAL video inputs to the NTE at the CCTV camera end in an uncompressed signal format suitable for transmission over the Openreach optical fibre network. At the control room end of the service these will be presented on the NTE as PAL video outputs.



The CCTV Access uncompressed service has the option of a 1, 4 or 8 video channels.

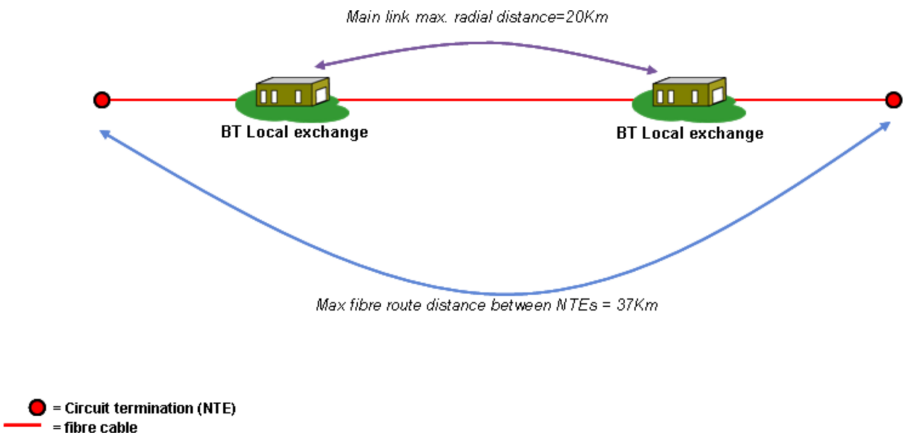
Audio and telemetry data channels are also provided.

2.2 Service Availability

The CCTV Access uncompressed service is available on a point to point basis within the UK and is limited to a maximum fibre route length of 37km. Route distance checks are carried out as part of the initial survey work, when an order has been placed.

A main link is limited to a maximum of 20km radial distance measured between the BT Serving exchanges (intermediate and host exchanges) at each end of a CCTV Access service.

Orders that exceed these limitations will be rejected.


Main link max. radial distance=20Km
BT Local exchange
BT Local exchange
Max fibre route distance between NTEs = 37Km
= Circuit termination (NTE)
= fibre cable

This is an end user site to end user site service only. All services are subject to survey. Connection from an end user site to a CP Point of Presence located in a BT Locate, CoLocate or Netlocate facility is not currently available.

This service cannot be used to provide connection between Communications Provider sites.

Please refer to the CCTV Access product handbook for details of the circuit options available (http://www.openreach.co.uk/orpg/products/cctvaccess/cctvaccess.doc).

3. Technical specification

3.1 Overview

This product allows compliant CCTV circuits to be transported between locations in the UK using BT's telecommunications optical fibre infrastructure. This is achieved by utilising specific NTEs, which perform electrical to optical, and optical to electrical signal conversion at each end of an optical fibre.

The Control room end of the service (A-end) will use card type NTEs installed in a 3U high, 16-slot rack mounted chassis. The number of services that can be installed in a 16-slot chassis will depend on the service types terminated as some NTE cards occupy two or three card slots.

The CCTV Camera end of the analogue service (B-end) will use an NTE installed within a card module adapter. Line protection unit(s) will be fitted to the card module adapter to provide primary line protection and hum suppression. The

customer interface will be presented as screw terminals and BNC connections on the line protection unit(s).

Standards compliance

Customer video signals presented to the NTE for transportation must comply with the PAL (Phase Alternate Line) video standard. Likewise, the signal handed back to the customer after transportation will comply with these requirements.

3.2 Video interface presentation

Customer connection to each PAL video channel of the CCTV Access circuit is made via a 75Ω, female BNC connector on the NTE or line protection unit. Nominal signal input and output level is 1V pk-pk.

The NTE are intended for use with unbalanced, 75Ω video circuits.

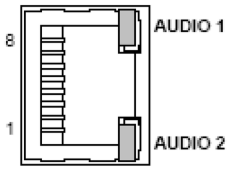
3.3 Audio interface presentation

Each CCTV Access circuit is provided with two bidirectional audio channels. The audio channels operate independently to the video.

The audio interface supports both balanced (both channels separately) and unbalanced wiring. The interfaces are normally presented as balanced circuits with 600Ω input impedance. Alternatively the audio input impedance can be set to high impedance (>10 kΩ). Audio input impedance adjustment can only be applied to both channels - it is not possible to set one channel to 600Ω and the other to high impedance. The audio output impedance is fixed at 10 Ω.

At the A-end (CCTV control room) the connector type is RJ-45 female. At the B-end (CCTV camera) screw terminal connectors are presented (see section 3.7).

The table below shows the RJ-45 pin-out details:



Note: Pin 1 of the RJ-45 socket is at the bottom of the connector.

Pin	Balanced audio	Unbalanced audio
1	1 out (-)	Gnd
2	1 out (+)	1 out
3	2 out (-)	Gnd
4	2 in (+)	2 in
5	2 in (-)	Gnd
6	2 out (+)	2 out
7	1 in (-)	Gnd
8	1 in (+)	1 in
Gnd		Gnd

For balanced audio, the Gnd connection is via the RJ-45 shield connection only.

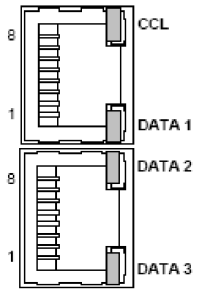
If using an audio channel for FSK signals, the output can be distributed to up to four cameras although this figure depends on the length of the cabling, the type of cable used, as well as the input impedance of the receiving equipment. If the

receiving equipment can be switched to high input impedance (≥10kΩ) then the number of distributions may be increased. Otherwise the use of an audio distribution amplifier is recommended.

Data channel interface specification

Each CCTV Access (uncompressed) NTE has 3 data channels. Data channels 1 and 2 can be set to either RS232, RS422, RS485 2-wire or RS485 4-wire (set by Openreach). Data channel 3 is fixed at RS232.

Data channel 1 shares its connector (RJ-45) with the CCL channel. Data channels 2 and 3 share the same connector..



Note: Pin 1 of the RJ-45 socket is at the bottom of the connector.

At the B-end (CCTV camera) screw terminal connectors are presented (see section 3.7).

CCL / Data 1 Connector Pin-out					
		Data 1			
Pin	CCL	RS232	RS422	RS485 (2-wire)	RS485 (4-wire)
1			In (+)	In/out (+)	In (+)
2		In	In (-)	In/out (-)	In (-)
3		Out	Out (+)		Out (+)
4	CCL in				
5	Gnd	Gnd	Gnd	Gnd	Gnd
6			Out (-)		Out (-)
7	CCL out A				
8	CCL out B				
RS485 2-wire connects to the INPUT pins only at both ends of the link.					

Data 2 / Data 3 Connector Pin-out					
	Data 2				Data 3
Pin	RS232	RS422	RS485 (2-wire)	RS485 (4-wire)	RS232
1		In (+)	In/out (+)	In (+)	
2	In	In (-)	In/out (-)	In (-)	
3	Out	Out (+)		Out (+)	
4	Gnd	Gnd	Gnd	Gnd	Gnd
5	Gnd	Gnd	Gnd	Gnd	Gnd
6		Out (-)		Out (-)	
7					In

8					Out

3.4 Contact closure (CCL) interface specification

One bi-directional Contact Closure (CCL) circuit is provided. This can be used to extend an alarm or similar condition from the NTE at the CCTV camera end to the NTE at the control room end, or vice-versa.

At the A-end the CCL connector is a shielded RJ-45 socket with integral LEDs (shared with data channel 1). Either or both CCL transmission directions can be configured for Video Source Alarm (VSA) monitoring.

CCL Connector Pin-out	
Pin	**CCL**
4	CCL in
5	Gnd
7	CCL out A
8	CCL out B

At the B-end (CCTV camera) screw terminal connectors are presented (see section 3.7).

Maximum output switching current is 1Amp @ 30V DC.

Line Protection Unit interface specification

At the B end (i.e. remote camera end) of the CCTV Access circuit, line protection units are fitted to the card module adapter which contains the NTE card.

Customer connection to each PAL video channel of the CCTV Access circuit is made via a 75Ω, female BNC connector on the line protection unit. Nominal signal input and output level is 1V pk-pk.

Customer connection to the Audio, Data and Contact Closure circuits is via screw terminals presented on the line protection unit.

Screw Terminal Connector (customer interface)					
Connector	**Pin**	**Signal**			
CCL	1	CCL in			
	2	Gnd			
	3	CCL out A			
	4	CCL out B			
DATA 1 & 2		**RS232**	**RS422**	**RS485 (2w)**	**RS485(4w)**
	1		In (+)	In/Out (+)	In (+)
	2	In	In (-)	In/Out (-)	In (-)
	3	Ground	Ground	Ground	Ground

	4	Out	Out (+)		Out (+)
	5		Out (-)		Out (-)
DATA 3	1	RS232 in			
	2	Gnd			
	3	RS232 out			
AUDIO 1	1	Out (+)			
	2	Out (-)			
	3	Gnd			
	4	In (+)			
	5	In (-)			
AUDIO 2	1	Out (+)			
	2	Out (-)			
	3	Gnd			
	4	In (+)			
	5	In (-)			

3.5 Heat Management

The permitted NTE operating temperature range is -10 to +60°C. The permitted humidity can be in the range 0 to 90% in non-condensing conditions. The permitted storage temperature range is –30 to +70°C.

4. Power supply

4.1.1 AC Power supply

Each NTE will require one 240 Volt AC power supply using 13 Amp switched sockets which must be provided within 1.5 metres of the NTE for each NTE provided.

In addition to the NTE power requirements a 50Hz AC mains supply 13amp socket should also be provided, in close proximity to the NTEs, to power Openreach test equipment during both initial commissioning and subsequent maintenance support activities.

4.1.2 DC Power supply

A DC power supply option is not currently available for CCTV Access.

5. Further information

For enquiries concerning connection availability between particular sites and for further "sales and marketing" information about this service please contact your BT Account Manager or Openreach Customer Business Manager.

See http://www.openreach.co.uk.

If you have enquiries relating to this document then please email: orsinsfa@openreach.co.uk

For information on where to obtain these referenced documents, please see the document sources list at https://www.openreach.co.uk/orpg/home/helpandsupport/sins/sins.do

References

	IEEE 802.3	LAN/MAN CSMA/CD Access Method
	IEEE 802.1	LAN/MAN Bridging & Management

6. Abbreviations

AC	Alternating Current
BNC	Bayonet Neill-Concelman
DC	Direct Current
CCTV	Closed Circuit Television
FSK	Frequency Shift Keying
NTE	Network Terminating Equipment
SIN	Suppliers' Information Note (BT Publication)
PAL	Phase Alternate Line

7. History

Issue	Date	Changes
Issue 1.0	**March 2008**	First published.
Issue 1.1	April 2008	The reference to the future launch date and the pre-launch caveats in the Service Outline were removed on the day of the product launch.
Issue 1.2	December 2014	Change SINet site references from http://www.sinet.bt.com to http://www.btplc.com/sinet/
Issue 1.3	September 2020	Changes to branding, from BT to Openreach including changes to reflect new Openreach SIN site and Openreach SIN email address
Issue 1.3	September 2021	Annual Review – no changes required – issue remains unchanged.
Issue 1.3	October 2022	Annual Review – branding and font changes only – issue remains unchanged
Issue 1.3	October 2023	Annual Review – branding and font changes only – issue remains unchanged
Issue 1.3	October 2025	Annual Review – no changes required – issue remains unchanged.

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